REMARKS

Applicants thank the Examiner for the through consideration given the present application. Claims 1-23 are currently being prosecuted. The Examiner is respectfully requested to reconsider his rejections in view of the amendments and remarks as set forth below.

Telephone Interview

Applicants note with appreciation the telephone interview conducted with Examiner Tamai on February 8, 2006. During that interview, Applicants' attorney suggested a number of changes to the claims to overcome the various rejections. The Examiner also presented alternative suggestions. The present Amendment incorporates a number of those suggestions which resulted from the Interview. In view of the discussion, Applicants submit that the present amendments to the claims overcome these rejections.

Rejection Under 35 U.S.C. § 112

Claims 19-23 stand rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. The Examiner objected to the use of the term "only" in claim 19. As pointed out during the telephone interview, claim 19 refers to the embodiments shown in Figure 4 where one set of rings are aligned radially while the other set are aligned axially. In this sense, Applicants believe that the term "only" was proper. The Examiner pointed out that since each magnet is not infinitely small, there would be a contribution between opposite ends of corresponding magnetic rings which would not be purely radial or purely axial. In accordance with the Examiner's suggestion, Applicants have now changed "only" to

"substantially primarily" to make it clearer that there could be an accidental magnetic force which occurs due to the finite size of the magnets. If the Examiner feels that other similar language is preferable, he is requested to suggest alternatives.

The Examiner also rejected claim 18 under 35 U.S.C. § 112, second paragraph, as being indefinite. The Examiner pointed out that it is unclear as to whether the reference to the magnetic rings was to the rings in the first or the second magnetic portions. By way of the present Amendment, Applicants have now indicated that the limitations are true for the rings in both portions. It should be remembered that claim 18 depends from independent claim 15 which relates to the embodiments shown in Figure 3. In view of this, Applicants submit that all of the rejections under 35 U.S.C. § 112 are overcome.

Rejection Under 35 U.S.C. § 103

Claims 1-3, 8, 9, 11, 15-17 and 19-22 stand rejected under 35 U.S.C. § 103 as being obvious over Ishizuka (UK 2335242) in view of Tadane et al. (JP 06-235420). This rejection is respectfully traversed.

The Examiner states that Ishizuka takes a bearing with upper and lower magnetic bearings 3 and 4 which provide axial and radial forces on the shaft and a ball bearing 5 connected to the shaft and base. The Examiner states that the upper bearings 4 have inner and outer rings which are radially aligned as shown in Figure 4 and lower bearings have three rings as shown in Figure 5. The Examiner states that Ishizuka teaches every aspect of the invention except the magnetic and bearing portions being on the inner side of the hub.

The Examiner relies on Tadane et al. to teach that the bearings on the inner side of the hub provide a compact low friction motor. The Examiner feels it would have been obvious to construct the fan of Ishizuka with bearings on the inner side of the hub as taught by Tadane et al.

Applicants submit that the claims as presently presented are not obvious over either of these references or their combination. Applicants submit that Ishizuka does not show a similar arrangement of magnets as that presently claimed. The Examiner refers to the upper bearings having inner and outer rings in Figure 4 which are radially aligned. In fact, these bearings are not aligned, but are offset by a distance L1 or L2 as shown in Figure 4. Since the Examiner has indicated during the interview that the word "aligned" can mean partially aligned, Applicants have now amended claim 1 to make it clearer that these rings are completely aligned, which is not taught by Ishizuka. Further, Applicants submit that Ishizuka does not show simultaneously generating axial and radial magnetic forces. While some of the embodiments shown use radially arranged rings and some of the embodiments use axially arranged rings, Applicants submit that none of the embodiments teach the idea of simultaneously generating axial and radial forces. The Examiner has referred to page 13 to teach the idea that any combination of bearings is acceptable. However, when this sentence is read in its entirety, it is clear that it refers to different sets of radial bearings so that the combination referred to is that of different types of radial bearings used together. Accordingly, Applicants submit that Ishizuka does not show a combination of axial and radial magnets.

The Examiner has also referred to Figure 5 of Ishizuka as showing an arrangement of three rings, in that Figure 5 shows two pairs of radially aligned rings. The inner ring of each pair is connected to the shaft while the outer ring of each pair is connected to the base. Thus, even if

one considers three out of the four rings, the arrangement is different from that of the present invention where the one ring connected to the base provides magnetic forces to the two other rings, one of which is radially arranged and one of which is axially arranged, and both of which are connected to the shaft. Thus, the arrangement shown in Figure 5 of Ishizuka cannot produce the simultaneous axial and magnetic forces as presently described in the claims. Accordingly, Applicants submit that this feature is also not shown.

It is further noted that the magnets 3A and 3AA of Ishizuka are fixed to shaft 7 while magnets 3B and 3BB are fixed to stator 2. Thus, magnets 3A and 3AA do not produce axial force and likewise magnets 3B and 3BB do not produce axial force either. That is, the axially aligned magnets in Figure 5 of Ishizuka cannot repulse or attract each other. Accordingly, Ishizuka does not teach an axial force provided by axially disposed magnets and therefore does not teach that the three magnets can produce forces in both directions. Likewise, Tadane et al. teaches that the first and second permanent magnets are fixed at both ends of the rotation shaft and the third and fourth permanent magnets are fixed to the cylinder part of the sleeve. Thus, Tadane et al. also does not teach that three magnets can produce forces in both directions.

The Examiner relies on Tadane et al. to teach the idea of the bearings being on the inner side of the hub. While this reference does teach the bearings being arranged on the inside of the hub, Applicants note that the magnetic rings arranged there are also offset and do not show the present arrangement of magnetic rings as presently claimed either. Accordingly, Applicants submit that the arrangement taught by the present claims is not shown in Tadane et al.

Applicants submit that even if these two references are combined, they still do not teach the presently claimed invention. Neither the references teach completely aligned magnetic rings

as presently claimed in claim 1. Also, neither of the references show an arrangement where the axial and radial magnetic forces are simultaneously generated due to the completely aligned magnetic rings. Accordingly, Applicants submit that claim 1 is allowable over this combination of references.

Claim 15 is an independent claim which refers to the embodiments shown in Figure 3. Thus, this claim describes the specific arrangement of three magnetic rings in both the first and second magnetic portions where an axial magnetic force is generated between the first and second magnetic rings and a radial magnetic force is generated between the second and third magnetic rings. Neither of the references teach this specific arrangement of the rings and accordingly, claim 15 is similarly allowable.

Claim 19 is an independent claim which describes the embodiments shown in Figure 4. In this arrangement, the magnetic portions are described as having two magnetic rings aligned radially to provide radial magnetic forces and three magnetic rings disposed axially to provide axial magnetic forces. This particular arrangements of the magnets is not seen in either of the references and accordingly Applicants submit that these claims are also allowable.

Claims 2-14 depend from claim 1, claims 16-18 depend from claim 15 and claims 20-23 depend from claim 19. Applicants submit that these dependent claims are also allowable based on their dependency from these allowable dependent claims. In addition, each of these claims have additional limitations which make them additionally allowable. Thus, these claims includes specific descriptions of the arrangements of the magnets in terms of their alignment, their connections to shaft or base, their symmetry and the polarity. Accordingly, these claims are additionally allowable.

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Claims 4-6 stand rejected under 35 U.S.C. § 103 as being obvious over Ishizuka and Tadane et al. further in view of Nakamura (JP 2000/078796). Claims 7 and 10 stand rejected under 35 U.S.C. § 103 as being obvious over Ishizuka, Tadane et al. and Nakamura et al. and further in view of Wyatt (U.S. Patent 4,471,331). Claims 13 and 23 stand rejected under 35 U.S.C. § 103 as being obvious over Ishizuka and Tadane et al. and further in view of Mendelsohn (U.S. Patent 2,582,788). Claim 12 stands rejected under 35 U.S.C. § 103 as being obvious over Ishizuka and Tadane et al. and further in view of Weilbach et al. (U.S. Patent 5,019,738). Claim 14 stands rejected under 35 U.S.C. § 103 as being obvious over Ishizuka, Tadane et al. and Nakamura et al. and further in view of Mehta et al. (U.S. Patent 5,883,449). Claim 18 stands rejected under 35 U.S.C. § 103 as being obvious over Ishizuka and Tadane et al. and further in view of Imlach (U.S. Patent 5,894,181). These objections are respectfully traversed.

Applicants submit that these claims are all allowable based on their dependency from claims 1, 15 and 19. In addition, each of the claims recite other features which make them additionally allowable.

Conclusion

In view of the above remarks, it is believed that the claims clearly distinguish over the patents relied upon by the Examiner, either alone or in combination. In view of this, reconsideration of the rejection and allowance of all of the claims is respectfully requested.

If the Examiner has any questions or comments, please contact Robert F. Gnuse, Reg. No. 27,295 at the offices of Birch, Stewart, Kolasch & Birch, LLP.

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If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

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Respectfully submitted,

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